

REMARKS

In response to the Final Office Action mailed February 25, 2010, the present application has been carefully reviewed and amended. Entry of the present Amendment and reconsideration of the application are respectfully requested.

By this Amendment, Claims 14, 20, 22, 28, and 29 have been amended, and new Claim 30 has been added. Accordingly, Claims 14, 16–22, and 28–30 are currently pending in this application, and no new matter has been added by this Amendment.

In the current Office Action, Claims 14, 20, and 29 were rejected for informalities, Claim 20 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite, Claims 14, 17, 19, 20, 28, and 29 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,089,103 to Smith (“Smith”), and Claims 16 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Smith in further view of U.S. Patent No. 5,221,256 to Mahurkar (“Mahurkar”).

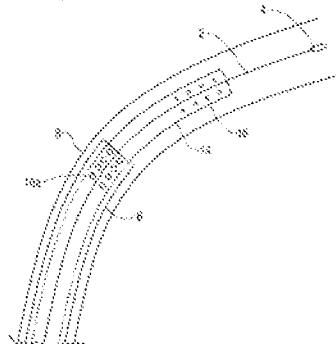
Applicants thank the Examiner for identifying the antecedent basis issues with Claims 14, 20, and 29. In accordance with the Examiner’s suggestions, Applicants have amended each of these claims to overcome the identified informalities. Consideration and entry of these amendments, and withdrawal of the outstanding claim objections, are respectfully requested.

In addition, to overcome the objection to Claim 20 under 35 U.S.C. §112, second paragraph, Applicants have clarified that the calculated blood flow rate is a value provided by an appropriate selection of the variables k , T_b , T_i , V , S , and a , as suggested by the Examiner at page 3 of the current Office Action. Applicants thank the Examiner for these suggested revisions to Claim 20, and request that the rejection under 35 U.S.C. §112, second paragraph, be withdrawn. Reconsideration is respectfully requested.

Applicants respectfully traverse the rejection of independent Claim 14 as being anticipated by Smith. As seemingly acknowledged by the Examiner at page 8 of the current Office Action, Smith does not disclose or suggest, among other things, distinguishing an amount of the indicator passing through the terminal port from an amount of the indicator passing through the injection port, as required by amended independent Claim 14.

Instead, as discussed in Applicants' October 14, 2009 Amendment, Smith teaches a guide catheter 6, an optional auxiliary catheter 14, side holes 16a, 16 formed in the catheter 6 and in the auxiliary catheter 14, and a guide wire 2 having a sensor 4 disposed at its distal end.

FIG. 3



When a thermodilution measurement is to be performed using the Smith device, the guide catheter 6 is filled to the distal opening with cold saline, a small bolus amount of the saline is then injected into the guide catheter 6 at the proximal end, thereby expelling a corresponding amount of saline from the distal opening of the guide catheter 6 and from the side holes 16a, 16 into a blood vessel 8. When the saline passes a temperature sensor on the distal tip of the guide catheter 6, the temperature sensor registers a temperature gradient and a timer is initiated. When the injected bolus passes the sensor 4 at the distal tip of the guide wire 2, another temperature gradient is recorded and the system then calculates a flow parameter.

There is, however, no disclosure of distinguishing an amount of the injected bolus passing through a terminal port in Smith's calculations. For example, while Smith contemplates injecting saline through both the distal opening of the guide catheter 6 and from the side holes 16a, 16, Smith does not quantify or otherwise distinguish the amount of saline expelled through the distal opening from the amount of saline expelled through the side holes 16a, 16 in calculating the flow parameter.

Since Smith does not disclose or suggest, among other things, distinguishing an amount of the indicator passing through the terminal port from an amount of the indicator passing through the injection port, as recited by independent Claim 14, Applicants respectfully traverse the rejection of independent Claim 14 over Smith. Reconsideration is respectfully requested.

Claims 16–22 and 28 depend directly or indirectly from independent Claim 14. Therefore, each of these dependent claims is allowable for at least the same reasons discussed above with regard to independent Claim 14. In addition, each of these dependent claims recites unique combinations that are neither taught nor suggested by the applied prior art, and therefore each is also separately patentable.

Applicants also respectfully traverse the rejection of independent Claim 29 as being anticipated by Smith. As seemingly acknowledged by the Examiner on page 6 of the current Office Action, Smith does not disclose or suggest, among other things, sensing the indicator intermediate the terminal port and the injection port along a direction of blood flow, as required by amended independent Claim 29. Instead, as disclosed in Smith, the injected bolus is sensed by the sensor 4 distal to the distal end of the catheter 6 and auxiliary catheter 14.

Since Smith does not disclose or suggest, among other things, sensing the indicator intermediate the terminal port and the injection port along a direction of blood flow, Applicants respectfully traverse the rejection of independent Claim 29 as anticipated by Smith. Reconsideration is respectfully requested.

In addition, none of the applied prior art either discloses or suggests, among other things, calculating the blood flow rate as a function of a total volume of the indicator and a portion of the total volume passing through the terminal port, as recited by new independent Claim 30. Instead, as explained

above, Smith does not distinguish the amount of saline expelled through the distal opening of its catheter from the amount of saline expelled through the side holes 16a, 16 in calculating its flow parameter. For at least this reason, new Claim 30 is allowable, and Applicants request consideration and allowance of this new claim.

Applicants believe each of pending Claims 14, 16-22, and 28-30 are in condition for allowance. Should the Examiner consider that additional amendments are necessary to place this application in condition for allowance, the favor is requested of a telephone call to the undersigned for the purposes of discussing such amendments.

Please grant any extensions of time necessary for the filing of this Amendment. Please also charge any additional required fees due to our deposit account 03-3875.

Respectfully submitted,



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